

Abstract

The present invention provides systems and methods for parallel interference suppression. In one embodiment of the invention, a processing engine is used to substantially cancel a plurality of interfering signals within a received signal. The processing engine includes a plurality of matrix generators that are used to generate matrices, each matrix comprising elements of a unique interfering signal selected for cancellation. The processing engine also includes one or more processors that use the matrices to generate cancellation operators. A plurality of applicators applies the cancellation operators to parallel but not necessarily unique input signals to substantially cancel the interfering signals from the input signals. These input signals may include received signals, interference cancelled signals and/or PN codes. The embodiments disclosed herein may be particularly advantageous to systems employing CDMA (e.g., such as cdmaOne and cdma2000), Wideband CDMA, Broadband CDMA and Global Positioning Systems ("GPS") signals.